Beam Power Tube

NOVAR TYPE

ELECTRICAL CHARACTERISTICS – Bogey Values

Heater Voltage, ac or dc	E_h	6.3	V
Heater Current	I_h	2.3	A

Direct Interelectrode Capacitances:[a]

Grid No. 1 to plate	$c_{g1\text{-}p}$	0.6	pF
Input: G1 to (K, G3, G2, H)	c_i	22	pF
Output: P to (K, G3, G2, H)	c_o	11	pF

For the following characteristics, see Conditions below:

Amplification Factor (Triode Connection)[b]	μ	–	–	3[c]	
Plate Resistance (Approx.)	r_p	–	–	6000	Ω
Transconductance	g_m	–	–	11000	μmho
DC Plate Current	I_b	–	800[d]	140	mA
DC Grid-No. 2 Current . .	I_{c2}	–	56[d]	2.0	mA
Cutoff DC Grid-No. 1 Voltage for I_b = 1 mA . .	$E_{c1(co)}$	-125	–	-50	V

Conditions:

Heater Voltage	E_h	←	Bogey Value	→	V
Peak Positive-Pulse Plate Voltage[e]	e_{bm}	5000	–	–	V
DC Plate Voltage	E_b	–	55	175	V
DC Grid-No. 3 Voltage . .	E_{c3}	30	30	30	V
DC Grid-No. 2 Voltage . .	E_{c2}	130	125	125	V
DC Grid No. 1 Voltage . .	E_{c1}		0	-25	V

MECHANICAL CHARACTERISTICS

Dimensional Outline. . . . . JEDEC No. 12-117
Envelope . . . . JEDEC T12
Top Cap . . . . Small (JEDEC C1-1)
Base . . . . Large-Button Novar 9-Pin with Exhaust Tip (JEDEC E9-88)
Terminal Connections (See *TERMINAL DIAGRAM*) . . . . JEDEC 9QL
Type of Cathode. . . . . Coated Unipotential
Operating Position . . . . Any

MAXIMUM RATINGS – Design-Maximum Values [f]

For operation as a Horizontal-Deflection-Amplifier Tube in a 525-line, 30-frame system

DC Plate Supply Voltage	E_{bb}	990	V
Peak Positive-Pulse Plate Voltage[g]	e_{bm}	7500	V
Peak Negative-Pulse Plate Voltage	$-e_{bm}$	1100	V
DC Grid-No. 3 Voltage[h]	E_{c3}	75	V
DC Grid-No. 2 (Screen-Grid) Voltage	E_{c2}	220	V
Peak Negative-Pulse Grid-No. 1 (Control-Grid) Voltage	$-e_{c1m}$	330	V
Heater-Cathode Voltage:			
Peak	e_{hkm}	+200	V
Average	E_{hk}	100	V
Heater Voltage:	E_h	5.7 to 6.9	V
Cathode Current:			
Peak	i_{km}	1200	mA
Average	$I_{k(av)}$	350	mA
Grid-No. 2 Input	P_{g2}	5	W
Plate Dissipation[j]	P_b	30	W
Temporary Overload Plate Dissipation[k]:	P_b	200	W
Envelope Temperature (at hottest point on envelope surface)	T_E	250	°C

MAXIMUM CIRCUIT VALUES

Grid-No. 1-Circuit Resistance:	$R_{g(ckt)}$		
Cathode bias (with min. R_K = 100 Ω)		1.0	megohm
Grid-leak bias (with signal peak clamped to zero bias)		10.0	megohms
Fixed bias (where positive grid current is not drawn)		0.47	megohm

a Measured without external shield in accordance with the current issue of EIA Standard RS-191B.

b With grid No. 3 and grid No. 2 connected, respectively, to cathode and plate at socket.

c Conditions: $E_b = E_{c2} = 125V$, $E_{c1} = -25V$.

d This value can be measured by a method involving a recurrent waveform such that the Maximum Ratings of the tube will not be exceeded.

e Under pulse-duration condition specified in *Footnote* **g**.

f As defined in the current issue of EIA Standard RS-239A.

g This rating is applicable when the duration of the voltage pulse does not exceed 15% of one horizontal scanning cycle. In a 525-line, 30-frame system, 15% of one scanning cycle is 10 μs.

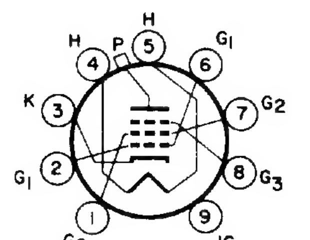
h In horizontal-deflection-amplifier service, a positive voltage should be applied to grid No. 3 to reduce interference from "snivets", which may occur in both vhf and uhf television receivers, and to increase power output. A typical value is 30V.

j An adequate bias resistor or other means is required to protect the tube in the absence of excitation.

k Total continuous or accumulated time not to exceed 40 seconds.

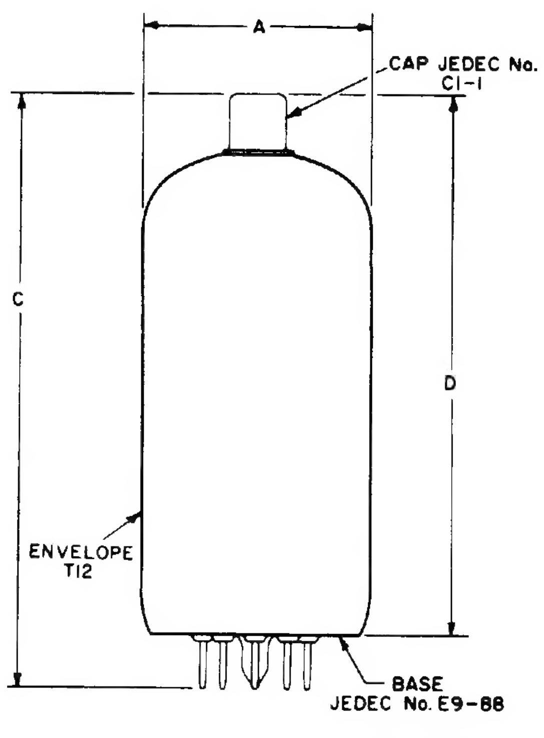
TERMINAL DIAGRAM – JEDEC 9QL (Bottom View)

Pin 1 - Grid No. 2
Pin 2 - Grid No. 1
Pin 3 - Cathode
Pin 4 - Heater
Pin 5 - Heater



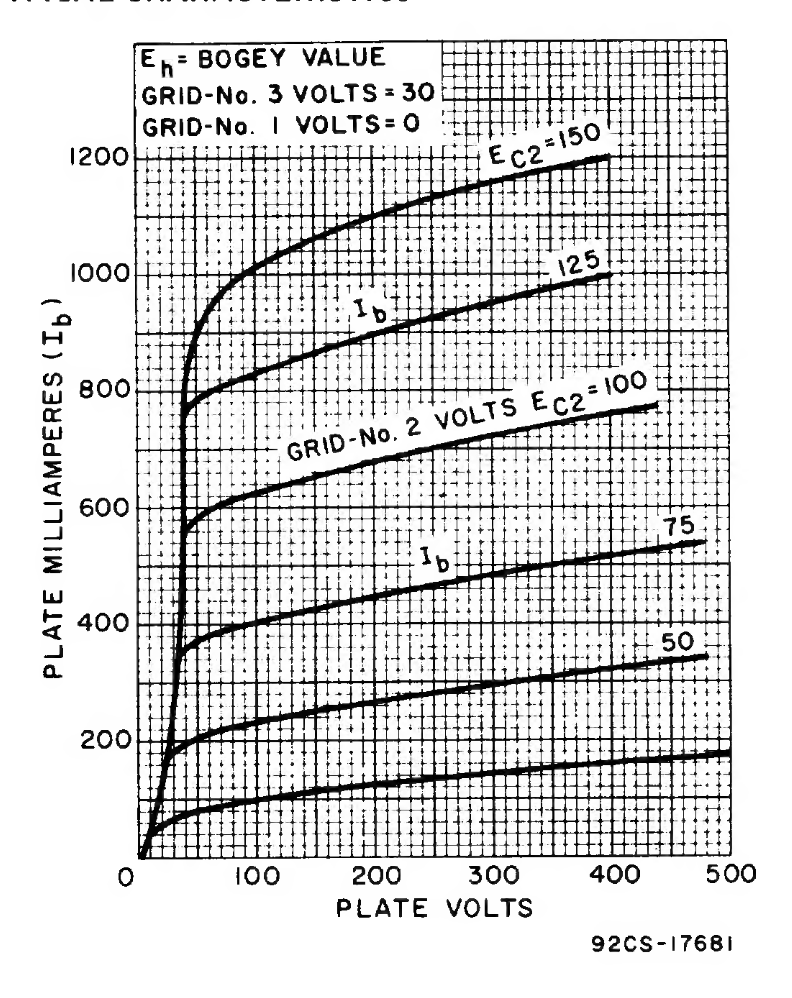
Pin 6 - Grid No. 1
Pin 7 - Grid No. 2
Pin 8 - Grid No. 3
Pin 9 - Do Not Use
Top Cap - Plate

DIMENSIONAL OUTLINE – JEDEC No. 12-117



DIMENSION	INCHES		MILLIMETERS	
	Min.	Max.	Min.	Max.
A	1.438*	1.562	36.6*	39.6
C		4.380	95.3	111.25
D	3.750	4.000	95.3	101.6
MILLIMETER DIMENSION DERIVED FROM INCH DIMENSION				
*Applies to the minimum diameter except in the area of the seal.				

TYPICAL CHARACTERISTICS



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